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ABSTRACT

This report reviews research and opinion concerning the teaching of reading with in-school television and describes a commercially televised reading program for sixth and seventh grade Duval County (Jacksonville, Florida) schoolchildren, who watched television at home, but who received correlated instruction in school classes. Pretest and posttest data were taken from a stratified sampling of approximately 1870 students. Analyses of the data indicate that the three-week, twelve-episode program increased vocabulary and words-in-context scores, but did not increase comprehension or reading-attitude scores. Opinions of a sample of the participating teachers were obtained by structured interviews and are reported in the study. The report concludes that televised instruction of this sort could both motivate and teach, especially when accompanied by in-classroom instruction, and that television program scripts, such as ones used in the featured study, are a valuable tool for the reading teacher. (Author/RL)

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TEACHING READING WITH COMMERCIAL TELEVISION VIEWED AT HOME: AN EVALUATION

by

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Introduction

According to Bell (1975), at least 97% of American households had at least one television set by 1975, and the average American sixth grader watched three to six hours of television per day. Schramm, Lyle, and Parker (1961) had pointed out years earlier that a school child in the United States was likely to spend more time in watching television than in any other activity except sleep and (possibly) play (depending on the definition of play). Witty (1959) completed the tenth of his annual surveys of televiewing by children, stating that children preferred televiewing to almost any other activity. He found elementary children to be watching twenty-one hours per week and secondary children watching twelve hours weekly. He added that both elementary and secondary students' preferences had turned to "westerns" and other shows containing violence. Carter (1976) found that primary children chose television viewing as the free time activity least preferred but most indulged in.

The tremendous appeal of television and the amount of student time spent in viewing it has caused educators and concerned parents to issue numerous warnings as to the content of television programming and its possible negative affects. Witty (1950) cited several reasons. Doan (1967) warned of excessive cartoon viewing, and McLuhan 1967) pointed out that the lives of our children contained an ". . . extraordinary degree of involvement in the T. V. experience." (p. 99)

Yet some of the warnings seem to have been premature. Witty (1967), looking back at the early research, maintained that although children's reading time decreased somewhat with the advent of television, they returned to reading about the same amount after the television's novelty wore off. Ridder (1963), after interviewing 2,428 junior high pupils, concluded that television viewing was not a reason for children's neglect of schoolwork.

Some educators have seen television as a mixed blessing. Witty (1966), after ten years of investigating the impact of televiewing on school children and reading, noted that many children maintained that television viewing helped them with their schoolwork. Consequently, he stated, "Research students should direct attention to discovering ways to obtain greater benefits from the universal appeal of the electronic Pied Piper" (p. 20). Brunner (1966), too, has been excited about the possibilities of television. "If there were ever a medium that could work on the relationship between presentation of ideas in language and through imagery, television is it," he exclaimed (p. 56)!

McIntyre (1967) went a step further, writing, "Among the severest critics of television are many educators, but I say that teachers and school administrators should, rather than condemn the medium, try and discover how it grips the imagination and attention of children. It is a real pity that the school cannot enthrall them as much, because learning should and can be fun" (p. 59).

Teaching reading with in-school television

A number of attempts to teach reading through televised instruction have been made. One of these was broadcast to Baltimore (Md.) pupils in 1953 when a strike closed schools. Forty-six thousand children were presented televised lessons. According to Witty (1954) the children claimed they learned best from the televised lessons in science and the language arts. Carner (1961), evaluating closed-circuit televised reading instruction in Cortland, New York, found that supplementary reading instruction without direct feedback from the classroom to the television studio was of little value, but with feedback (a push-button communication system) a significant increase in reading achievement could be affected. Carner (1962) later went on to point out that television can have a favorable effect on attitudes toward reading.

Homme (1967) reported a phonic-word-reading project carried out in Albuquerque, New Mexico. Preschool children from two to four years of age were taught to read words using a light-sensitive cathode ray (T.V.) tube. Words and pictures were shown on the screen as audio directions and explanations were given. The subjects responded by pointing their light pencil at the appropriate section of the screen. According to Homme, the behavioral technology needed to teach reading to preschoolers existed in 1967.

McDonald (1971) examined four different methods of reinforcement of vocabulary words presented by closed-circuit instructional television to seventh and eighth graders in Phoenix. The auditory

reinforcement method consisted of the visual presentation of 15 words (one at a time) accompanied by the audio presentation of the word, a synonym for the word, and a one-minute discussion of the word and its meaning. The second method included all the components of the first, plus a one-tenth second flashed (supraliminal) presentation every five seconds during the one-minute discussion. The third method included all the components of the first two and, in addition, it involved subjects in choosing each word taught (from a set of distractors) and circling it. The fourth method included the components of the first and third, but not the supraliminal (second) presentation. McDonald found that the methods requiring the circling of the printed word were superior. The supraliminal reinforcement increased scores, but not as much as did the written reinforcement (circling) procedure. McDonald concluded that written reinforcement techniques help students make greater gains in learning vocabulary words taught via I.T.V.

Martin and Meltzer (1976) reported results of an experiment in which printed sentences were shown on a television screen with each syllable timed to appear exactly when it was spoken. Sentences thus appeared, syllable by syllable, in left-to-right order on the screen. Twenty-four second, third, and fourth grade children attending summer remedial classes in a parochial school watched and listened to the presentation of these sentences three times during a two week period. The children also read other sentences, each of which was presented on the screen as a whole. Judges rated the pre-test post-test

differences in oral fluency. The authors concluded that those sentences presented with "visual rhythm" were read more fluently by the subjects.

On October 7, 1974, Alaskan pupils in 15 rural sites viewed educational television for the first time. One of the programs shown them was "Amy and the Astros," a language arts series in which one character (Amy) assisted two others (the Astros) in learning English and in learning about Alaska. The programs were beamed to the rural sites by satellite. The evaluations thus far have not been reported. , Nor have the results of the British television reading show, "Words and Pictures," which, according to Morris (1974), was in use in twenty percent of British infant schools in 1974. According to Chovril (1975) the success of "Look and Read," a British program for older children, has also not been subjected to formal evaluation.

Lamb (1976) described reading programs televised to audiences in five midwestern states from a plane circling high above. Despite advance publicity and the availability of manuals from the Midwest Program an Airborne Television Instruction there was ". . . a massive vote of no confidence registered by non-subscribers. . ." (p. 236). After pointing out that many teachers did not watch the programs with their classes, but instead spent the program time in the lounge, Lamb commented that ". . . teachers may be instructional television's most potent foe" (p. 376).

The effectiveness of educational television viewed in school as a means of teaching reading and other subjects has been controversial. Ofiesh (1968) claimed that educational television was ineffective as a part of the school curriculum. Murphy and Gross (1966), however,

had earlier concluded otherwise. They stated that instructional television was at least as effective as ordinary classroom instruction, whether results were measured by examinations or standardized tests. They pointed out that the most common result of experimental comparisons was the finding of no significant differences.

Educational television viewed at home

Humphrey (1967) described a televised reading program broadcast during the summer of 1966. The purpose of the program was to prevent the loss of reading skills by children who had just completed first grade in the Evansville (Indiana) area. The subjects were children who were tested in the spring of 1966 (as first graders) and again in the fall of 1966 (as second graders). The change in their scores was compared to the change in scores of a similar group tested in the spring and fall of 1965.

The children watched the first half of an introductory program in school during the month of June. This half was intended to motivate the children to watch the 40 lessons which were to be broadcast during the summer. The second half was directed to parents, who had been notified earlier in the week that the program was to be, in part, for their benefit. This part was intended to motivate parents to be interested in the children's activity books, to take their children to the library, and to help children understand directions given by the television teacher.

The show and the activity book were both entitled Ride the Reading Rocket. The teacher, Miss Sandy, and her puppet, a space-creature

named Rocko, taught sight words and reviewed basic skills. Each day during the eight weeks of broadcasting the teacher drew a simple picture relating to the day's lesson. The children were instructed to copy it on the attendance page of their activity books. In this way the investigators acquired an attendance record of each day's viewing audience.

During the summer the studio received 2,342 postcards from viewers. Furthermore, 518 new first grade graduates signed up in branches of the public library as "Rocket Readers." More than 1,000 visited Miss Sandy at these library branches during the eight weeks of televiewing.

The pretest-posttest score changes for 1,906 experimental subjects were compared to those changes for the 2,051 members of the control group. While control group scores in total reading decreased from a mean of 2.02 (grade equivalent) to 1.86, the experimental group's scores decreased less, from 2.06 to 2.04.

Among the conclusions reported by Humphrey were the following:

1. The summer television program significantly increased library usage.
2. Compared to children who had no formal reading program during the summer, the children participating in the televised summer reading program made significant gains. This was especially true for boys.
3. Children whose returned activity books indicated that they had watched more than half the programs made significantly greater gains than those who watched less than half of the programs or who did not return their activity books.

The Evansville-Vanderburgh School Corporation went on to create a number of other television programs which were first shown on WNIN-TV, Evansville, and were later made available for use throughout the country. These were still being aired during the summer of 1976. Among the programs offered were "Zany Zoofari," "Catch A Bubble," "Up, Up and Away," and "Summer Journal." However, the only one subjected to a careful evaluation was the first, "Ride the Reading Rocket."

In 1963, 16 half-hour programs were presented to parents in Denver, Colorado. The purpose was to help parents prepare their children for beginning reading instruction. McManus (1964) reported that parents who had viewed the broadcasts from station WENH-TV had helped their children make significant gains in sight word recognition, in letter-naming, and in simple phonics skills. The skill most emphasized was using context and the sound of the initial letter as dual cues for decoding words.

Perlish (1968a, 1970) chose 134 three and four year old Philadelphia children to whom he taught pre-reading and reading skills with a half hour television show five days per week for 39 weeks. The children viewed the show at home and were given reinforcement and help by their parents as they completed their "Workland Workshop" workbooks (Perlish, 1968b). The 70 members of the experimental group who completed the project earned significantly higher scores on the criterion reading test than those earned by the 80 members of the control group who consistently watched "Captain Kangaroo" during the experimental time period.

Dunn (1970) employed closed circuit television to present the alphabet, letter sounds, and basic vocabulary words to 90 children aged two through four. Parents were asked to attend the televised presentations and to help their children ten minutes per day by following a manual provided them. Dunn found that the greatest gains were made by children from lower socioeconomic classes, but age and verbal intelligence were not related to gains made. Gains were positively related to the amount of time parents spent in follow-up activities with their children.

"Tel-Catch" (1976), a system funded by the State of New York, enables children who are unable to go to school to dial a controlling computer by phone. Then they place their telephone receiver in a special holder (an acoustic coupler) which has a small typewriter keyboard attached. By typing out a lesson request to the computer, the children can receive cable-transmitted television lessons. More than 2,200 lessons are available. A special key calls for direct voice assistance from live teachers standing by. The Director is James Marillo. No evaluation has been reported as yet.

Eller (1975) described the Individual Mastery Learning Instructional System, a title III ESEA project implemented in four schools located in the San Francisco Bay area of California. In this project, the total audiovisual resources of participating schools were catalogued and computer-stored so that teachers could call for any listed materials by typing in their requests on a console. The orders were then filled by real-time off-air broadcasts from the ETV center of the archdiocese of San Francisco. The reception of these broadcasts

was made possible by the installation of microwave towers at the four participating schools. When real-time off-air broadcasts could not be made available, video cassette copies were made and delivered to schools by truck. (Once a video cassette was delivered to a school, it remained there as part of that school's video cassette library.) During 1973-74, 36 participating teachers requested 207 programs for use by 1,080 students.

At the conclusion of the pilot project, teachers interviewed preferred video cassette delivery to real-time off-air broadcasts because video cassettes had several advantages. First, the cassette enabled the teacher to be flexible in scheduling its use. Second, the cassette could be replayed as necessary, for a class or for an individual student. Third, cassettes could be partially used. And fourth, cassettes were available in color.

The attitudes of the participating teachers had changed radically. When the project began, only 1.9% of the teachers thought of T.V. as a means for individualizing instruction. However, by the end of the second year of the project, 59.9% regarded T.V. as "an important instrument for individualizing instruction."

Nation-wide televised reading experiments

The first nation-wide broadcasting of reading instruction was videotaped in Philadelphia with the support of grant monies. According to Luke (1965) "Operation Alphabet" was designed to promote literacy among functionally-illiterate adults with one hundred half-hour tapes and an accompanying booklet (the Home Study Book). Since

the tapes could be obtained free, and since thousands of adults were believed to have viewed the program in the greater Philadelphia area, soon the tapes were viewed in more than one hundred American cities.

Bunger (1964) evaluated "Operation Alphabet" in the State of Florida. Basing her conclusions upon information from 243 adult viewers of the program, 31 volunteer teachers, and 10 adult education directors, she concluded that the program was not successful, particularly when viewing was not supplemented by group instruction from a teacher. Regular viewing at home seemed to lead neither to improvement of reading nor to enrollment in adult basic education classes.

More recently two shows directed at children have been successful at holding their audiences. Both of these are productions of the Children's Television Workshop. They are, of course, "Sesame Street" and "The Electric Company." The Children's Television Workshop has reported a number of their research and evaluative activities related to these programs.

Ball and Bogatz (1970) reported, in their evaluation of the first year of "Sesame Street," that there were three reasons for attempting to teach preschoolers with television. These included the fact that nearly every home in the United States has a television set, the fact that children learn from television, and the fact that existing programs were not aimed at providing education to lower-income children who were unlikely to be educated in nursery schools or kindergartens. Ball and Bogatz pointed out that a great deal of research was included as formative evaluation, and that the summative evaluation (contracted

to Educational Testing Service) was unique because (1) the show was unique, (2) there was almost no research on the effects of educational television on preschool children, and (3) the program was nationally televised on open-circuit television.

Lesser (1974) discussed the unique cues to learning that were available to the writers and producers of "Sesame Street." For example, speech balloons that appeared for ten seconds as a means of teaching letter names soon cued viewers that the appearance of a balloon was a signal to learn letters. Zoom-in cued children to discriminate the features of a display that were zoomed-in on.

Similarly, modeling behaviors of hand (in clapping, scratching, rubbing, etc.) and body was very effective in eliciting these behaviors among pre-school viewers. Narrow focusing (or totally stripping a visual image of its irrelevant information) enabled children to attend to central content. Careful synchronization of sight and sound during production required learning how modalities can support each other as well as learning to prevent cross-modalities interference.

The goals of the "Sesame Street" program were stated in behavioral terms and an attempt was made to compare the learning of these goals for three, four, and five year old children who watched at home or in their pre-school classrooms with the learning of comparable groups who did not watch. According to Ball and Bogatz the results were conclusive. Children who watched more of the program segments earned higher scores on the posttest and gained more in scores. Three year old children gained more than fours, who gained more than

fives. Disadvantaged children watched less and gained less than more advantaged ones. The comparison of at-home viewers with at-school viewers was unsuccessful because so few at-home viewers watched with any consistency. (The preschoolers' behavior was thus similar to that of the adult illiterates found by Bunger in 1952.) Rural children gained more from viewing than did the overall sample, and the gains of Spanish-speaking children were spectacular. When the overall progress of target groups was evaluated, positive effects were found for nearly every goal attempted.

Bogatz and Ball (1971) also reported the evaluation of the second year of "Sesame Street" viewing. In so doing, they replied to Sprigle (1971) who had argued that "Sesame Street" had failed to achieve success with his population of matched pairs of five year old children. Bogatz and Ball reaffirmed the report of the first year's showing and added that children who had viewed the programs both years performed significantly better in the goal areas that were new to the second version of the show, and in two of the three attitude areas. In this latter assessment (of attitude toward school and race) the evaluation of "Sesame Street's" second year demonstrated that television programs could deal with the affective areas relevant to school learning. While Garry (1967) had pointed out that programs ordered in a sequence based on "aggressive content" (from low to high) seemed to heighten aggressive responses among boys, the producers and evaluators of "Sesame Street" demonstrated that affective responses could be intentionally manipulated through educational television.

Since "Sesame Street" had become a smash hit, the Children's Television Workshop decided to produce a second series devoted to the improvement of reading. The "Electric Company" was designed to improve some of the reading skills for all first graders, as well as for those below average in reading achievment in grade two, and for those at the lowest quartile of reading achievement in grades three and four. Three types of research were involved in the evaluation and follow-up evaluation of the impact of "The Electric Company."

Formative and supportive research on attention, motivation and certain auditory and visual display features was contracted to the Ontario Institute for Studies in Education. Sociological aspects were investigated by the Institute for Social Research at Florida State University, and the summative evaluation was again conducted by Educational Testing Service.

The sociological findings have been impressive. According to Herriott and Liebert (1972), "'The Electric Company' . . . recorded a remarkable advancement over previous trends in school innovativeness. If only in terms of speed and scope of penetration of elementary schools of all kinds, TEC must be considered a highly successful venture" (p. 3). These sociologists went on to report that within two months of its first showing, the Electric Company was being viewed in 23% of the elementary schools in the United States and that these comprised 45% of all schools which had television receivers in their classrooms and 70% of the large city schools so equipped. The number of pupils watching in school was nearly two million, including one of four second and third graders in large cities. The impressiveness of

these figures is greater when one considers that in 1972 nearly half of the schools in the United States were not equipped to receive television broadcasts.

A second volume was completed by Liebert (1972). He reported that 6 percent of the nation's schools dropped "The Electric Company" in 1972-73, but that another 6 percent began viewing it. The biggest increase was in rural school districts and the districts most likely to have continued for the second year were the urban ones. By late fall 1972, 41 percent of the school districts in the United States had made some use of "The Electric Company," and more than 28 percent had used it in two succeeding years. The major impedance to the spread of the use of "The Electric Company" was lack of equipment or of proximity to a participating station. Nearly half of the schools surveyed had such technical deficiencies as to make viewing the show impossible.

The evaluation of the viewing of "The Electric Company" was reported by Ball and Bogatz (1973). In each of eight experiments they found that viewing classes earned larger gain scores than non-viewing classes with which they had been paired. Both target groups (all first graders, the lower-achieving half of the second graders, and the lowest quarter of the third and fourth graders) and non-target groups gained in reading scores, with target groups making greater gains (many non-target students scored so well on the pretest that very little gain was possible) although the difference was not significant at grades three and four. No systematic effects on

children's or teachers' attitudes were found, although most teachers of the experimental classrooms did favor the in-school use of the show. Reading achievement on the posttest used did not seem to be affected by the scheduling of the viewing. Classes which added time for viewing the televised lessons to their usual amount of time in reading instruction did not differ from classes for which the television viewing time replaced some of their usual reading instruction time. Target group boys gained more than girls in grades one and four, while girls outgained boys in grades two and three. Color television was slightly less effective than black and white television, but not significantly so. When children were grouped by decile of reading achievement, no gains could be reported for the lowest decile. When classes who were encouraged to view the programs at home were compared to those not so encouraged, it was found that the actual amount of viewing differed very little and that there were no differences in reading achievement for target groups, for non-target groups, and for total classes. As with "Sesame Street" and "Operation Alphabet," there appeared to be little support for recommending that "The Electric Company" be viewed at home.

As a result of supportive research conducted by the Ontario Institute for Studies in Education, provocative findings about the effectiveness of televised instructional strategies have been reported. O'Bryan (1975) summarized results of their Mackworth camera photography of the eye movement patterns of children watching "The Electric Company." Subjects were good readers, poor readers, and non-readers aged nine to eleven.

It was found that good readers directed their eyes to printed material as soon as it appeared on the television screen. They rarely looked back to the words left on the screen. Instead they directed their visual attention (or at least their gaze) to changes in words displayed and to additions, deletions or expansions of the printed message. To the good reader, the positioning of the print and the accompanying display appeared to make no difference in his visual response. However, there were notable differences between the responses of good readers and of poor readers. Poor readers were often distracted by televised action not performed by the print displayed. The direction of their eye movements to the print frequently ended after they had observed the first two or three letters of the word or words displayed. The poor readers tended to take longer to fixate on the printed material and consequently to cease looking before the whole word had been observed. When their gaze returned to the print, it returned again to the first few letters. Adequate observation of words by poor readers did appear to result from computer-formation of words or animation of words. More fixations and longer fixations accompanied such presentations of printed material on the screen. O'Bryan suggested that causing the poor reader to pay attention to print for more than a letter or two without letting his attention stray ". . . will not be an easy problem to overcome" (p. 5).

Non-readers looked at printed material on the television screen with random eye-movement patterns. Some attention to print was associated with animation of the print, but single words or sentences were

likely to be examined with a pattern that started in the middle of the printed display. Any action was likely to draw the visual attention of the non-reader away from the print. When flashing letters were shown, however, non-readers tended not only to fixate longer on these letters than did good and poor readers, but also to ignore (not fixate on) the rest of the word. These findings support the fifty-year old work of Brown (1924), who announced that the major problem encountered in teaching reading to young children was the control of their (visual) attention. The findings are confirmed by Hargis, Gickling, and Mahoud (1975), who evaluated the "Electric Company" as a means of presenting sight words to eight students with learning difficulties. It was found that learning disabled students learned words presented on television no better than other words of similar difficulty which were not taught. In fact, none of the eight learned the word "electric" which was presented at least twice in each of the 32 telecasts.

O'Bryan stated several other specific findings:

1. For placing printed messages, the best position on the screen was central.
2. Balloons drew more attention than other methods of presentation of printed messages.
3. Zoom boxes were very effective.
4. Static print was least effective.
5. Flashing print drew the gaze to a great extent.
6. Animated print generated better scanning of printed messages.

7. Computer-produced (letters in sequence) print was more effective in drawing and holding the gaze of subjects.
8. Live action tended to reduce attention to print (when contrasted to cartoon action sequences).
9. When action appeared first, and then was followed by printed messages, poor readers tended to observe the printed stimuli in much the same fashion as good readers.

The work of the Ontario group has helped to explain the early findings of this author (Mason, 1965), that good readers appeared to have been learning more words from viewing television commercials than had been poor readers (who probably viewed the commercials even more frequently than did the good readers). The findings of the Ontario researchers were transmitted to the Children's Television Workshop as a set of suggestions for revision of "The Electric Company." These suggestions should enable future televised reading programs to employ the ". . . most parsimonious method of presenting the visual stimulus" (p. 10).

Commercial Television and reading

While research provides increasingly comprehensive guides to effective program construction, program directors of television stations have continued to select programs for airing and educators have continued to promote literacy in every way possible, including the use of both educational and commercial television. Gattegno (1969), believing that television's contribution to education could be in the teaching of decoding, developed a series of one-minute "Pop-up"

films that related the phonemes in spoken words to the letters in printed words. As the letters appeared in sequence on the screen, their "sounds" were presented, then blended together. The letters were colored to represent particular language sounds. Cazden (1972) described Gattegno's "Pop-ups" as showing through animation how written language looks and works. However, according to Feeley (1975) no evaluation of the presentation of the "Pop-ups" by NBC in 1971-72 has been reported.

According to Peters (1974) subtitles on the picture presented to Norwegian television audiences may be responsible for the high literacy rate in Norway. Mason (1965) found that children had learned to read words through viewing commercial television programs. Garry (1967) added that television was a contributor to vocabulary development in young children, but that it appeared to have a negligible effect on overall academic achievement.

According to Kinnimon (1975) a small number of commercial television stations did at one time present televised reading instruction. These included book review shows, shows designed for viewing in the classroom, and several early morning basic literacy programs. However, in 1975, only two remained on the air and both were early morning programs aired by big city stations. One was sponsored by a state education department and the other by the city school system.

Perhaps the reason for dropping reading-related shows was lack of communication between commercial television stations and public school systems. In a scathing denunciation of commercial television programming, Wagoner (1975) pointed out that television ". . . can

teach, but, in order to do so efficiently, it must be linked with one of the teaching institutions in society" (p. 183). But few instances of such links can be found.

The only one known to this author is one which involved commercial television stations in El Paso, Texas and personnel in several nursery schools. Coleman and Morton (1976) reviewed efforts to teach reading to preschool children and Spanish-speaking children through televised lessons involving crude animation. In order to insure that the content was meaningful, early televised lessons presented cartoon characters with bubbles over their heads. Print appeared in these bubbles letter-by-letter as the speaker spoke. This animation enabled word-teaching to be in both an oral and a pictured context of whole stories.

The first lessons were telecast by educational television stations to 450 three to six year old children in Pulaski, Virginia in 1969. Thirteen words had been selected for teaching in 20 lessons. These words were selected for their utility in generating a maximum number of easily learned sentences (I can. Stop it. Get up. Can I go see?). The results led to the conclusion that the subjects learned the general idea of what reading was and ". . . about eight words and/or letter correspondences" (p. 9).

The next attempt was made in Oak Hill, West Virginia during the following year. Seven words were to be learned in only five half-hour educational telecasts. The results were summarized as follows: ". . . the first five of the twenty lessons taught the average three-, or five-year-old the overall concepts plus about

4.5 new words and/or letter sound correspondences. This is 65 percent of the seven presented that week" (p. 10).

In 1972 an attempt was made to present the essence of the original 20 lessons in just one 30-minute telecast. It was to be broadcast in El Paso, where the show had been created by University of Texas - El Paso personnel. Only four words were taught (can, I, go-go, stop). The show was broadcast simultaneously by three television stations (one representing each major network) which had earlier run numerous 60-second commercials advertising the show. During that week, newspapers had featured a comic strip taken from the show, and the mayor of El Paso declared the day of the broadcast to be I CAN READ DAY.

Nursery school children were tested immediately after the telecast. Among English-speaking four year old and five year old children attending a private nursery school, the mean number of words learned was 3.64 (out of 4). Among Spanish-speaking four year old and five year old children in two Outreach nursery schools the mean number of words learned was 2.56. After presenting other, non-television, research findings, Coleman and Morton concluded that carefully engineered spot presentations of ten to sixty seconds on commercial television could not only maximize the amount of reading ability gained by American children, but could raise the national intelligence.

Today, instead of producing new programs for viewing at home or school, increasing numbers of reading educators are recommending that teachers capitalize on children's interests in commercial television

as a means of motivating them to read more and improve their reading. Potter's (1976) excellent book reviews the history and describes the present status of the relationship between television and academic instruction, giving numerous teaching strategies for relating to and capitalizing on children's television viewing. McWhorter (1973) produced a booklet including recommendations for teaching reading as relevant to television programs.

Hamilton (1976), in a six-week experiment, found that 253 New Jersey seventh graders chose to read an average of 7.54 T.V. tie-ins (books related to their television viewing) and only 3.07 non-T.V. tie-ins (a ratio of 23 to 10). He concluded that T.V. tie-ins were effective in promoting an interest in reading among pupils in a low socioeconomic group and pupils with limited intelligence.

Daluohy (1976) found that classes of children characterized as low-interaction classes learned more from watching five television programs when programs were followed by televised discussions (of the programs) by the teacher and the class. Daluohy also stated that high-interaction classes probably wouldn't need to view such discussions.

Adams and Harrison (1975) administered a questionnaire to grade school pupils. They found children to be watching commercial television an average of five hours each weekday, eight hours on Saturday and four on Sunday. One-third were allowed to watch whatever was available, while the others had some parentally-imposed restrictions. Half the students claimed to have read most of the printed words displayed on the television screen, but fifteen percent said they ignored

the words. Poor readers said that viewing the words on television helped them with their silent reading. Average readers believed that it helped them with spelling. Good readers said that it increased their vocabularies. Fourth graders preferred television viewing as a home-work assignment. Favorite programs listed were "Good Times," "That's My Mama," "Sanford and Son," "The Six Million Dollar Man," and "Get Christy Love."

Solomon (1976) interviewed participants in a 1000-pupil pilot study of a television-related reading program for inner-city Philadelphia middle school students. He reported remarkable changes in attitude resulting from a six-step program in which children read scripts of their favorite star's roles and asked each other for help with the words. Cafarella (1975) and Goldsmith (1975) had reported similar programs in which videotapes of commercial T.V. shows were viewed in school as motivation for related reading activities.

Summary of teaching reading with television

Based upon the findings and conclusions of the writers and researchers whose works have been cited, several conclusions can be drawn:

1. Television does interest students and viewing television programs occupies a great deal of their time.
2. Television can add to children's vocabulary, both spoken and written.
3. Televised reading instruction which is viewed in the classroom can significantly improve reading achievement for some pupils, particularly those who are below the mean in reading achievement (but not in the lowest decile).

4. Televised reading instruction which is viewed at home is likely to have little or no measureable positive effect on reading achievement, unless parents watch and help.
5. Attitude toward reading and other subject areas can be affected by television viewing.
6. More than half the schools in the United States are equipped with television receivers and a tremendous number of those so equipped have employed these for in-school viewing of televised reading instruction.
7. The number of televised reading instruction programs aired by commercial stations appears to be decreasing.
8. Slow learners learn best from educational television when televised presentations are followed by video examples of discussion of the shows or by direct feedback from classroom to television studio with response by studio teachers.
9. Written reinforcement activities aid junior high students in learning vocabulary words through television viewing.
10. Encouraging children during school to view certain programs at home does not appear to result in consistent home viewing of the recommended programs.
11. Using children's viewing preferences in creating interest in reading materials in the classroom, such as television scripts or "T.V. tie-ins," is a valid procedure which is rapidly gaining acceptance by American teachers. It appears to be particularly useful for children of low socioeconomic status and those of low intelligence.

The present investigation

The work of Solomon and his colleagues with inner-city children in Philadelphia gained cooperation of television producers in 1975, when scripts were made available. The New York Times described the program in the next year (King, 1973) and in January, 1974, after their procedures had been demonstrated on "The Mike Douglas Show," T.V. Guide (Waters, 1974) gave a glowing report on the work of the Philadelphia educators. This and other publicity led Post-Newsweek Stations, Inc. to employ McAndrews and Solomon as consultants for the development of a television program for the specific purpose of improving the reading of fifth through eighth grade students in urban schools (American Education, 1975).

First, the developers located a 1934 Universal science fiction serial entitled "The Vanishing Shadow." Its twelve installments were re-edited with modern television techniques including animation, freeze-frames, slow motion segments, and superimposed words, phrases, and sentences. Ventriloquist Ernie Fields and his puppet, C. R., were added to the program as "campy" commentators whose comments were heard against a rock music background.

The resulting twelve shows were then scripted. That is, scripts were written to match the edited videotapes. These scripts were used by consultants Marjorie Johnson and Thomas Lachman in suggesting teacher's guides and reading materials for follow-up work in the schools (Post-Newsweek News Release, April 18, 1975). The Duval County Schools (Jacksonville, Florida) were then asked to participate in a cooperative educational venture.

Post-Newsweek Stations, Inc. and the Duval County School Board negotiated for more than a year before the program was finally shown. Arrangements had to be made with sponsors of the show (McDonald Restaurants, Public Super Markets, Pic 'N' Save Drugs, Southern Bell Telephone Company, and R. C. Cola) and with the sponsors of the show to be pre-empted ("Bewitched"). Arrangements also had to be made for communicating with the teachers of the approximately 17,000 children to be involved and for distributing scripts, teacher's guides, and student viewing guides, the latter two of which had been modified by the staff of Mrs. Esther Miles, Reading Supervisor for the Duval County Schools.

The contract for the evaluation of the program was awarded in mid-March. The program, now entitled "The Reading Show," was to be aired by WJXT-TV, Channel 4, Jacksonville, from 7:00 to 7:30 p.m. Monday through Thursday for three weeks, starting April 14, 1975 and ending May 1, 1975.

Procedures

Approximately 8,249 sixth grade students in eighteen schools and 8,807 seventh grade students in fourteen schools in Duval County were the target viewers. Approximatley 200 language arts teachers were directed to participate in (1) the introduction to the episode to be shown each evening, (2) viewing the telecasts, and (3) a review of skills lesson on the class day following each telecast.

The evaluation of this telecast reading instruction, with the accompanying introductions and reviews of skills by participating teachers, was intended to provide answers to two questions:

1. Does this mode of presenting content material motivate students to read to a greater extent than the techniques used in these classrooms in the past?
2. Does this mode of presenting content, and teaching skills lessons based on this content, result in improvement of reading vocabulary and comprehension.

In March, 1975, the Duval County Board sent out invitations to submit proposals for accomplishing the evaluation. In a section entitled "Suggested Procedures" certain types of measures and components of the evaluation were suggested:

A. To assess changes in student attitude
   1. Written pre/post measures of student attitude
   2. Teacher interviews to validate the results of the student attitude measures
B. To assess changes in skill development
   1. Pre/post tests for students in vocabulary, including word identification and word meaning
   2. Pre/post tests for students in the comprehension skills of recalling facts and information, making inferences, and making predictions
C. If the above measures indicated that significant improvement had occurred as a result of the televised reading program, further analyses of differential benefits (boy/girl, grade 6/grade 7, and good reader/poor reader) should be made.
D. Since it appeared likely that not all teachers would incorporate the skills lessons in their classroom activities,

attitude and skills measures of students in classes of any non-participating teachers should be used for comparison purposes, if sufficient numbers elected not to participate.

Since virtually all teachers did participate, however, suggestion D was not taken.

The tests administered

Five tests were selected or constructed. The first four were administered both as pretests and posttests. The first test included the Reading Section (fifteen-item) of the Estes Attitude Scale (Estes, 1971) and five additional items. The Estes Attitude Scale provided an assessment of attitudes toward reading. The last five items dealt with attitudes toward television viewing.

The second test consisted of thirty vocabulary items designed to measure knowledge of the printed words to be taught in conjunction with the televised program. Multiple-choice items were developed to measure ability to recognize and choose the correct word for a particular context or definition.

The third test consisted of three selections from The National Assessment of Educational Progress, Report 02-R-20--Released Exercises (Education Commission of the States, 1973) with their accompanying test items and seven other items constructed by the evaluator. All items were multiple-choice. About half were intended to evaluate ability to predict outcomes or to make inferences. The other half were intended to measure recall of factual information.

The fourth test was a modified cloze test composed of 20 items. It was designed to determine whether examinees could choose words appropriate to the context of a selection. Examinees were provided a list of words from which to select their choices. Correct choices were mostly words which were taught by the televised program.

The fifth test was administered only as a posttest. It contained ten multiple-choice items intended to reveal the extent to which the subjects watched T.V., the number of episodes of the "Vanishing Shadow" that they watched, and how they felt about watching.

The children selected to take the tests were a stratified probability sampling of language arts classes randomly selected from sixth and seventh grade schools. Sixteen sixth grade classes and sixteen seventh grade classes were assigned to take only the four pretests. Sixteen sixth grade classes and sixteen seventh grade classes were to take only the five posttests. Sixteen sixth grade classes and sixteen seventh grade classes were to take both the pretests and the posttests. The total pretest group was to have been 1867, less absences. The total posttest group was to have been 1878, less absences. Assignment to pretest group, posttest group, or pretest and posttest group was randomly determined, and testing dates were set. Pretests 1 and 2 were given on Thursday, April 10. Pretests 3 and 4 were given on Friday, April 11. Posttests 1 and 2 were administered Thursday, May 8. Posttests 3, 4, and 5 were administered on Friday, May 9. Tests were to be administered by language arts teachers during the regular class meetings of the selected classes.

Tests and machine-scoreable answer sheets had been distributed to schools by the Duval County Board of Education well in advance of the testing dates. One teacher from each school had been asked to attend a training session in which test directions were explained and questions about test administration were answered. That teacher was then directed to train those teachers in his/her school whose classes were to participate in either the pretesting or the posttesting.

Despite these precautions, not all teachers who had been expected to administer the pretests did, in fact, do so. Furthermore, some tested another class (one which would "do better" on the tests), rather than the one which had been selected by the randomized sampling procedure. And, worst of all, torrential rains in Jacksonville kept many pupils home. It is not likely that those who did come to school on April 10 and 11, 1975, were a representative sample. There was therefore a strong likelihood that the pretest scores could be artificially inflated by the absence of--or the failure to test--approximately 370 students. As a precaution against further depletion of the sample, additional classrooms were randomly selected to participate in the posttesting.

Test Data

The reliability of the tests was established by the computation of the Coefficient Alpha (Cronbach, 1951). The coefficient for the second test (vocabulary) was .90. The coefficient for the third (comprehension) was .62. For the fourth (cloze-words in context) the coefficient was .90. The reliability of the Reading Section

of the Estes Attitude Scale was established at .81 but the five items added by the evaluator had a Coefficient Alpha of only .06. Consequently, no decisions could be based on these five items.

The Interviews

Five interviewers visited schools on May 1 and May 2. Interviews were conducted with twenty-six randomly selected language arts teachers on May 1 and with 27 more on May 2. The interview schedule was designed to verify the children's responses to Tests 1 and 5 and also to ascertain the teachers' attitudes toward the televised instruction and the general use of television as a tool for instruction in reading. It is included in Appendix 1.

Results and Discussion

Attitude toward reading and television

The changes in children's attitudes toward reading are shown in Table 1. The reader should remember that not every child recorded his answer to every item and that some children were absent for some tests. Consequently, numbers of subjects are reported for each item.

Table 1 about here

As the reader can observe, the pretest-to-posttest changes are small and insignificant except for changes in the responses to items eight, twelve, and twenty. In all three of these events, the change is toward greater agreement. Greater agreement with items eight and twelve suggests an increase in negativism toward reading. The

change in response pattern to item twenty may be interpreted as a positive response to the teacher-led discussions of the "Vanishing Shadow" episodes.

In order to more completely assess the impact of the telecasts and the accompanying school-based instruction upon the children's attitudes toward reading, a median was determined for each set of responses to each of the first 15 items (These 15 comprise the Reading Section of the Estes Attitude Scale.) for the pretest group and another median for the set of responses to each of these items by the posttest group. These were then scored according to Estes' instructions (Estes, 1974) and the results compared. The range of scores possible is from 15 to 75. Scores over 45 are considered to be indicative of positive attitudes toward reading. The sum of 15 medians for the pretest group was 55 and for the posttest group was 53. The sums indicate that the population sampled was somewhat positive about reading, but that they were less positive toward reading in May than they had been in April. Table 2 presents the significance of the loss in scores. In Table 2 (and in all the succeeding tables in which significance tests were applied to the differences in means) the significance test is that described by McNemar (1955) as appropriate for testing the difference between means of very large independent samples.

Table 2 about here

When scores of the total group are considered, the average loss of more than a point in attitude score is statistically significant.

Such a loss would occur by chance fewer than eight times per thousand. However, the mean loss for seventh graders was not significant. Such a small change was to have been expected. Therefore, the important information in Table 1 is the significance of the pretest/posttest loss in attitude scores of sixth graders.

A possible explanation is that a sampling error occurred. Certainly the rains that occurred on the pretest days kept many potentially low-scoring students from taking the pretests and could have inflated the pretest scores. Furthermore, the fact that some teachers did not give the pretests or gave the pretest to a class other than the one randomly selected (tests were discarded whenever it was found that the wrong class had been tested, but it is possible that not all errors were found) could have confounded the pretesting. Deletion of low scoring classes from the pretesting could indicate that an average loss had taken place when such a loss might not have, in fact, occurred.

If the loss were real, it would substantiate the possibility that the televised program, accompanied by script-reading and teaching introduction and review, did result in a decrease in interest in book and magazine reading. It could not, however, indicate that a less positive attitude toward reading (as a process) had resulted. Only after the testing did it become apparent that attitude toward reading books and magazines was not what the televised show was intended to improve. The show was intended to create a positive attitude toward reading television scripts, and this goal was evaluated

only sketchily. The creation of a positive attitude toward reading scripts had to be evaluated by making inferences from teacher interviews and from subject responses to items 9 and 10 of Test 5, which was given only as a posttest.

Vocabulary

The changes in percent correct responses from the vocabulary pretest to the vocabulary posttest are shown in Table 3.

Table 3 about here

Inspection of Table 3 reveals that the percent correct increased for 23 of the thirty vocabulary items, decreased for six items, and remained the same for one item. The median of the tabled percents was 50 percent correct on the pretest and a median 54 percent correct on the posttest. As Table 4 shows, it may be safely concluded that a real and significant increase in vocabulary test scores resulted from "The Reading Show" program and the supplementary instruction provided by the language arts teachers.

Table 4 about here

The mean posttest scores were higher than the mean pretest scores. The chances of such a total difference occurring by chance are less than four in 100,000. Both sixth and seventh grade comparisons showed a positive change in scores. However, the increase for seventh grade scores was more pronounced. One reason might be the pretest sampling error proposed earlier. A second reason

might be that seventh grade subjects were more able to learn from the televised program and the accompanying instructions.

Comprehension

The changes in percent correct responses from the comprehension pretest to the comprehension posttest are shown in Table 5.

Table 5 about here

As can be observed in Table 5, the percent correct responses to seven items decreased while an increase can be noted for only three items. The median of the table pretest scores is 59 percent, while the potttest median tabled is 57 percent. The test of the significance of the raw score decrease is reported in Table 6.

Table 6 about here

There was essentially no change in comprehension scores. What little decrease there was could have occurred by chance (or may have resulted from the pretest sampling loss) and is therefore nonsignificant.

Of interest to the validity of the measure of comprehension is the performance of Duval County seventh graders on three items taken from the 1970-71 National Assessment of Educational Progress - Reading (1970). These three were numbered 2, 4, and 5 on Test 3 of this evaluation. The NAEP numbered them 718, 730, and 507, respectively. Table 7 reports performances by several groups on these three items.

Table 7 about here

Items two and four measured (according to the NAEP) "predicting outcomes" and "making inferences," whereas item 5 measured "gleaning facts." The performance of Duval County seventh graders on items 2 (718) and 4 (730) was similar to that of the national and Southeastern sample described by N.A.E.P., but on item 5 (507) the Duval County seventh graders far exceeded expectancies. Their performance on item 5 could cast some doubt on the representativeness of the sample, but their performance on items 2 and 4 support a strong claim that a representative sample was obtained and a valid measure obtained.

Choosing words appropriate to a context

The pretest-to-posttest changes in the percent of correct responses in choosing words appropriate to a context are shown in Table 8.

Table 8 about here

Observation of Table 8 confirms that increases in the percent of correct responses occurred on seventeen items while decreases occurred on only three items. The median percent correct responses on the pretest was 31. For the posttest the median percent correct was 43. The significance test for the difference in mean raw scores is reported in Table 9.

Table 9 about here

The differences in mean scores for both sixth and seventh grade students were significant. It is extremely unlikely that such a gain could have occurred by chance.

Watching "The Reading Show" program

The students' responses to ten questions (Test 5) about their involvement in "The Reading Show" program and its related school-based instruction are shown in Table 10.

Table 10 about here

The subjects' responses indicated that nearly all (90%) watched some of the telecasts and most (73%) watched all or most of the shows. Most (85%) read the script some of the time as they watched and more than half (56%) read it all or most of the times that they watched. The reason may have been that the script was never difficult for the majority (63%) to read.

Most students (81%) reported that their teacher discussed forthcoming shows with them during the day the show was broadcast. A majority (71%) indicated that they always or usually did the follow-up exercises each day in school. Ninety-four percent indicated that they had learned at least a few new words and the majority (56%) indicated that they had learned many new words.

"The Reading Show" program therefore has to be viewed as a success in terms of student responses about their involvement and their learning. Table 10 also indicates that the subjects' interest in reading scripts was aroused. Most of the respondents (72%) indicated that they had read ahead in the script to find out what would happen in the next episodes to be shown. Most (71%) reported that their friends liked the show at least a little and in the majority

of cases (76%) family and/or friends watched the show with the student, who almost always (94%) watched at his own home or a friend's home.

Teacher interviews

Interviewers met with teachers whose feelings about "The Reading Show" program ranged from real enthusiasm to outright hostility. Ninety-eight percent of the sample of teachers stated that they had watched the show, although fewer (68%) enjoyed it. These teachers could have been the ones (68%) that watched most of the episodes, but such was not the case. Many conscientious teachers could not watch episodes because of other commitments, such as graduate courses which met two evenings per week. The majority of the sample (52%) watched when they could throughout the three-week showing of the serial's episodes. However, thirty percent stated that they stopped watching before the series was over.

Nearly all (98%) teachers interviewed stated that their students watched the telecasts, and 84 percent said that their students enjoyed the shows, especially during the first week. Many teachers reported a waning of interest as the show went on. They pointed out that the show was watched about equally by good, average, and poor students, although they noted that poor students enjoyed it more than others. A plurality of the sample (36%) reported that their students watched for a time and then quit, while another group (30%) said their students watched it from first episode to last. A third group (20%) reported that their students did not watch much at first and then became regular watchers as the show progressed.

Sixth-two percent of the sample of teachers believed that the show would be worth the time and money invested in it. In their students' remarks 64 percent had heard evidence of learning (especially of the new vocabulary). Teachers found their planning time to have stayed the same (48%) or to have decreased (44%). Most (62%) teachers would continue such a cooperative venture and would recommend (84%) it to another school system, providing a different and more current serial was used. While enthusiastic about the approach, the teachers interviewed were very critical of the particular serial shown. Seventy-four percent of the sample believed that evening television could be effectively correlated with daytime instruction; but 96 percent believed that more effective planning would need to be done for it to succeed. Most (70%) believed that it should not be compulsory, but should be optional for teachers to use or not use. Ninety-six percent of the sample had no moral objection to cooperating with commercial television.

Opinions varied on how such a program should be scheduled, but the majority of teachers (64%) in the sample thought more time should be spent in preparing them to capitalize on such a program. How they might be prepared is difficult to say, since they were evenly divided as to whether in-service education should be provided for preparing them. Ninety-two percent of the sample thought that they had enough materials for implementing the desired instruction, but 70 percent thought the lesson plans to be restrictive.

According to most of the teachers the major benefit of incorporating "The Reading Show" into the regular school program was the motivational

value of the telecasting. The major disadvantage was in the timing. Both children and teachers had evening commitments: Little League, music lessons, graduate courses, clubs, families, etc. Many resented the infringement upon their time and many parents (an estimated 5%) resented having to give up their favorite T.V. program so that their children could watch a required show. Teachers were asked, "If the 'Vanishing Shadow' program (as it was then called) and its associated lessons should fail, what do you think will be the major reasons for its failure?" The most frequent reply was "conflicting time schedules." A less frequent, but very common reply was "poor content in the show." This second reply confirms the earlier statement that teachers were not sold on the particular series, "The Vanishing Shadow."

Nevertheless, 74 percent of the teachers in the sample stated that their students were better prepared for the lessons based upon "The Reading Show" than they usually were for the regular language arts lessons. Sixty-two percent said that all or most of their students regularly read the scripts and 58 percent reported that their students were more interested (14% said students were less interested) than in their usual lessons. Perhaps this is because 94 percent of the teachers in this study teach some children whom they believe would rather watch television than read. More likely, it is because teachers found that their students were doing unrequired reading as a result of the program. Ninety-six percent of the teachers reported that some of their students were reading ahead in the scripts in order to find out what was going to happen next.

Sixty percent of the teachers had heard from a few of the parents of their students. From these communications and from student comments 95 percent were aware that large numbers of parents did watch with their children. More teachers reported only favorable parent reactions (38%) than only unfavorable reactions (14%), but nearly half (48%) reported receiving both favorable and unfavorable reactions. Some parents thought the program was great--a nostalgia trip. Others thought it insulting or degrading, and some parents (46% of the teachers had encountered it) forbade their children to watch. Seventy-two percent of the teachers reported either that students had to miss other evening activities in order to watch the telecasts, or that they missed the telecasts. Parents frequently called or sent notes explaining why their children had not watched (just as they would explain an absence from school). In this event, parents were usually told that their children could participate by reading scripts instead of watching the shows. Ninety-four percent of the teachers maintained that reading the scripts was sufficient to enable children to participate. The exceptions were the teachers of very poor readers.

In summary, nearly all sixth and seventh grade language arts teachers in the Duval County Schools participated in the language arts program and required their students to participate. Many required their students to view the show. Those who did not require viewing did require students to complete worksheets. This required either viewing or reading scripts. Teachers generally were enthusiastic about the motivational value of commercial television and were eager to cooperate. However, many were negative toward the particular serial,

the "Vanishing Shadow," and toward required participation by all classes. Most believed the series to be appropriate for the below-average student and to be very inappropriate for their advanced classes. Most wanted more advance preparation or notice so that they would not have to give up previously planned activities which they and their classes were looking forward to.

Corollary Information

Two types of corollary information were available for further investigating the impact of the televised lessons and the related school instruction. One of these was the attendance in eighteen schools serving as sixth or seventh grade centers. Membership in classes in these eighteen schools at the end of April, 1974, was 12,149, whereas at the end of April, 1975, membership totaled only 11,862. However, the number of students attending school during April of each year was 10,752 and 10,806, respectively. The percent in attendance was higher during the period when "The Reading Show" was aired. The increase was from 81.8% to 88.5%.

The second type of corollary information was book circulation. Book circulation for May, 1974, in these eighteen schools was 50,679 volumes, while in May, 1975, book circulation totaled 46,357 volumes. In May of 1974, 4.7 books per person attending were in circulation. In May, 1975, there were only 4.3 books per person in circulation. Based on these corollary measures, we can state that less reading of school library books accompanied the televised reading project. This tends to confirm the apparent decrease in attitude toward reading.

Open discussions with classes

Such a statement must be tempered with the observations made during open discussions with members of several classes, both of seventh graders and of sixth graders. While some of the teachers were being interviewed, "The Reading Show" was discussed with their classes by the evaluator.

In these discussions it was apparent that the advanced literature classes were very condescending and very negative toward the show. "It would be all right for my fourth-grade brother," was a typical comment. On the other hand, middle achieving groups tended to be somewhat favorable, although the students pointed out that they would have preferred something more modern, such as "Star Trek," and that they would have preferred not to have the commentators and the instant replay. "At first it was funny," they said, "But it got old in a hurry."

The low achieving students convinced the evaluator that they really enjoyed the shows and that they had become "hooked" on scripts. In one sixth grade classroom in a ghetto school, a boy (the spokesman for his class) asked, "Mr., can you get us some more scripts?' When asked whether it mattered whether the scripts were for old shows or new; for shows already shown or not yet shown; or for western, comedy, adventure, or science fiction shows; the answer was "We don't care, just get us some scripts. We like scripts." Since this request was made during the teacher's absence from the room, it was believed to be genuine.

Sex and grade level comparisons

Sixth grader's attitudes toward reading were more positive than seventh graders' at the time of the pretest and, while both sixth and seventh graders' scores were lower on the posttest, only sixth graders' scores were significantly lower. (See Table 2.)

Seventh graders started with higher scores on the vocabulary test and gained more. Seventh graders' score gains were significant; sixth graders' gains were not. The same was true for scores on the test of words in context. While in comprehension, although seventh graders scored only a little higher on the pretest than sixth graders, seventh grade scores did not drop and sixth did. (See Tables 4, 5, and 9.)

Sampling error on the pretest has previously been advanced as a possible explanation for the loss in scores by sixth graders on the measure of attitude toward reading. However, the grade level comparisons strongly suggest that "The Reading Show" was more appropriate for seventh graders than for sixth graders. Consequently, increased negative attitudes among sixth graders may have been a result of inappropriateness of the content of the show and/or the related instruction.

Female reading attitude scores were higher than those of males, although both dropped from pretest to posttest. As expected, females were apparently more positive toward reading than males were. Males earned higher pretest scores than females on the vocabulary test, but females closed the gap somewhat on the posttest. Females scored higher on the test of words in context, but males closed the gap slightly on the potttest. In comprehension female scores were higher

than those of males on both pretests and posttests, but female post-test scores were less superior to those of males than their pretest scores had been. The mean scores for males and females are shown in Table 11.

Table 11 about here

Comparisons by teacher and classroom

Twenty-three classes were correctly administered both pretests and posttests by their teachers. Although the children attending classes on the four testing days were not exactly the same, visual inspection indicated that most of the children in these classrooms were in attendance during both testing periods. Mean attendance in the 23 classrooms for the pretests was 24.2 and for the posttests, 24.1. The class means (raw score) are reported in Table 12.

Table 12 about here

Mean gain (or loss) scores were computed for each classroom on each measure and an analysis of the variance in scores among these 23 classroom means was performed. The differences were not significant (alpha = .05). This result suggests that the teacher variable did not play a major role in the differences in test scores, and it confirms the general high level of teacher support suggested by the responses to the teacher interviews.

Summary and Conclusions

In the Duval County experiment, television broadcasts aired by a commercial television station and supported by in-school instruction

were shown to have had a significant impact upon one aspect of reading development. Sixth and seventh grade children made significant gains in scores on a vocabulary test and a test of choosing words to fit a context.

This finding supports a large body of prior research which indicates that television viewing is most effective as an educational technique when it is done in the classroom or when it is supported by supplementary instruction from parents and/or teachers. It also supports the earlier research finding that written reinforcement activities aid in vocabulary learning through television viewing by junior high students. It adds a new dimension to previous findings, however, because of the success of this television program as both a motivator for reading (of scripts) and as a presenter of vocabulary words to be learned. And because the subjects were sixth and seventh grade children, it fills some of the gaps in research findings derived from investigations of preschool learning and adult learning through televised reading instruction.

The implications of these findings are these:

1. Although reading instruction broadcasts on a commercial television station can have a pronounced effect on the reading achievement of school children, ways must be found to deliver televised instruction at multiple reading levels and/or to restrict television audiences to targeted groups.
2. Television scripts appear to be a worthy source of high-interest reading material for reluctant readers.

3. Home viewing of assigned television programs (with viewing guides and worksheets) should be further explored as a teaching strategy to be followed-up by review and extension activities in the classroom. This would require distribution of scripts to schools in advance of program airings.

Table 1
Responses to the Estes Attitude Scale
and Five Other Items (in percents)

	Item		Percent Responses*				
			SA	A	U	D	SD
1.	Reading is for learning but not for enjoyment. N (Pre) = 1499 N (Post) = 1899	Pre	7	9	10	33	41
		Post	11	9	7	30	42
2.	Spending allowance on books is a waste of good money N (Pre) = 1503 N (Post) = 1901	Pre	7	8	13	40	32
		Post	8	7	16	36	33
3.	Reading is a good way to spend time. N (Pre) = 1499 N (Post) = 1901	Pre	45	40	7	4	4
		Post	56	39	8	4	4
4.	Books are a bore. N (Pre) = 1502 N (Post) = 1901	Pre	4	5	15	34	43
		Post	4	6	16	33	41
5.	Watching T.V. is better than reading. N (Pre) = 1498 N (Post) = 1898	Pre	22	16	39	14	10
		Post	26	16	32	17	8
6.	Reading is rewarding to me. N (Pre) = 1501 N (Post) = 1898	Pre	25	34	24	10	7
		Post	25	33	26	10	7
7.	Books aren't usually good enough to finish. N (Pre) = 1504 (N (Post) = 1897	Pre	5	10	18	38	29
		Post	6	11	23	37	24
8.	Reading becomes boring after about an hour. N (Pre) = 1496 N (Post) = 1893	Pre	10	17	21	32	20
		Post	12	20	21	28	19
9.	Most books are too long and too dull N (Pre) = 1497 N (Post) = 1891	Pre	9	14	19	35	23
		Post	10	14	20	35	21
10.	There are many books which I hope to read. N (Pre) = 1498 N (Post) = 1894	Pre	48	35	9	6	3
		Post	44	35	11	6	5
11.	Books should only be read when they are assigned. N (Pre) = 1497 N (Post) = 1896	Pre	4	5	6	25	60
		Post	5	5	7	30	53
12.	Reading is something I can do without. N (Pre) = 1494 N (Post) = 1891	Pre	6	5	11	26	52
		Post	6	6	10	28	49

Table 1 (Continued)

13.	Some part of summer vacation should be set aside for reading. N (Pre) = 1494 N (Post) = 1893	Pre	20	34	22	11	13
		Post	20	31	21	12	15
14.	Books make good presents. N (Pre) = 1499 N (Post) = 1897	Pre	23	41	24	7	6
		Post	22	42	22	9	6
15.	Reading is dull. N (Pre) = 1501 N (Post) = 1889	Pre	5	6	13	34	43
		Post	6	7	15	36	36
16.	Parents should watch T.V. with their children. N (Pre) = 1491 N (Post = 1885	Pre	17	25	36	12	9
		Post	20	26	32	12	10
17.	Watching T.V. is a good way to learn about life. N (Pre) = 1497 N (Post) = 1892	Pre	32	37	20	7	4
		Post	31	37	21	6	5
18.	T.V. is for enjoyment but not for learning. N (Pre) = 1498 N (Post) = 1896	Pre	7	8	15	36	33
		Post	7	7	17	35	34
19.	T.V. is not worth watching. N (Pre) = 1501 N (Post) = 1898	Pre	4	2	6	24	64
		Post	4	3	7	24	61
20.	Teachers should talk about T.V. with their classes. N (Pre) = 1500 N (Post) = 1901	Pre	19	25	34	14	9
		Post	24	27	29	12	9

*SA=Strongly Agree A=Agree U=Undecided D=Disagree SD=Strongly Disagree

Table 2

Significance of the Differences
Between Pretests and Posttests
of Reading Attitude

			Pretest	Posttest	Gain or Loss	Significance
Grade	Six	Mean	58.313	56.309	-2.004	.001
		N	754	1018		
	Seven	Mean	55.581	55.464	-0.017	N.S.
		N	713	822		
	Total	Mean	56.985	55.932	-1.053	.008
		N	1467	1840		

Table 3

Pretest and Posttest Correct Responses
to the Thirty-Item Vocabulary Test*
(in percents)

Item Number	Correct Word	Percent Correct	
		Pretest	Posttest
1	authority	50	52
2	reluctant	40	49
3	dominates	35	44
4	impenetrable	41	49
5	stockholders	50	57
6	scoop	30	54
7	antidote	71	74
8	proposition	59	61
9	contraband	38	45
10	appeal	38	47
11	persuade	66	66
12	calloused	45	49
13	publicity	65	62
14	acknowledge	37	38
15	oppose	45	51
16	reinforcements	38	47
17	apology	80	73
18	interest	65	63
19	intricate	21	33
20	show-down	78	80
21	pursue	58	61
22	hold	20	26
23	document	71	68
24	cinch	61	63
25	proxy	35	41
26	treacherous	29	42
27	vault	74	79
28	scheme	63	77
29	tread	55	54
30	escape	79	74

*N for each pretest item was approximately 1500. For posttest items N was approximately 1900.

Table 4

Significance of the Differences Between Pretests and Posttests of Vocabulary

			Pretest	Posttest	Gain or Loss	Significance
Grade	Six	Mean	14.613	15.573	+0.960	.01
		N	764	970		
	Seven	Mean	15.678	17.693	+2.015	.000001
		N	709	822		
	Total	Mean	15.126	16.545	+1.419	.00004
		N	1473	1792		

Table 5

Pretest and Posttest Correct Responses to the Ten-Item Comprehension Test*

Item Number	Type of Comprehension Skill Measured	Percent Correct	
		Pretest	Posttest
1	Recall of factual material	79	80
2	Inferential (prediction)	75	72
3	Inferential (prediction)	75	71
4	Inferential	83	79
5	Recall of factual material	58	57
6	Inferential	20	19
7	Word meaning in context	7	10
8	Recall of factual material	27	31
9	Recall of factual material	70	65
10	Inferential	59	54

*Pretest N = approximately 1500; posttest N approximately 1900

Table 6

Significance of the Differences Between Pretests and Posttests of Comprehension

			Pretest	Posttest	Gain or Loss	Significance
Grade	Six	Mean	5.439	5.194	-0.245	N. S.
		N	726	944		
	Seven	Mean	5.687	5,682	-0.005	N. S.
		N	584	817		
	Total	Mean	5.549	5.420	-0.129	N. S.
		N	1310	1761		

Table 7

Performance (in percent correct) on Three Items by Various 13 Year Old Subsamples of the 1970-71 NAEP - Reading and by Duval County Seventh Graders in 1975

Sample or Sub-sample	Item 2 (NAEP #718)	Item 4 (NAEP #730)	Item 5 (NAEP #507)
National	85.4%	96.8%	64.3%
Southeast	84.0%	96.1%	59.7%
Ghetto	82.4%	89.8%	43.6%
Big City Non-Ghetto	88.9%	95.7%	62.9%
Duval County	89.1%	94.9%	94.6%

Table 8

Pretest and Posttest Correct Responses to the Twenty-Item Test of Words Appropriate to Context*
(in percents)

Item Number	Correct Word	Percent Correct	
		Pretest	Posttest
1	make	76	77
2	reluctant	21	27
3	he	86	85
4	scheme	65	72
5	from	87	85
6	legal	30	62
7	stock	70	74
8	stockholders	53	57
9	proxy	5	32
10	power	25	37
11	oppose	31	38
12	dominate	14	23
13	decisions	31	38
14	exposed	32	43
15	accused	61	62
16	pool	8	11
17	they	64	65
18	returned	68	65
19	interest	27	35
20	atonement	9	21

*Pretest N = approximately 1500; posttest N = approximately 1900

Table 9

Significance of the Differences Between Pretests and Posttests of Choosing Words Appropriate to a Context

			Pretest	Posttest	Gain or Loss	Significance
Grade	Six	Mean	8.379	9.648	+1.269	.0001
		N	665	970		
	Seven	Mean	9.073	10.662	+1.589	.0001
		N	558	778		
	Total	Mean	8.696	10.099	+1.403	.0000001
		N	1223	1748		

Table 10

Responses to Ten Questions About Participation in the Vanishing Shadow Program

Item Number	Question	Percent Choosing Response
1.	How many of the "Vanishing Shadow" shows did you watch on T.V.?	
	(a) all twelve shows	31%
	(b) most of the shows	42%
	(c) about half the shows	9%
	(d) a few of the shows	14%
	(e) none of the shows	3%
2.	Did you read the script as you watched?	
	(a) every time	27%
	(b) most of the time	29%
	(c) about half the time	9%
	(d) a few times	20%
	(e) none of the time	15%
3.	Was the script hard to read?	
	(a) always	2%
	(b) sometimes	24%
	(c) never	63%
	(d) I didn't read it	8%
4.	Did your teacher discuss the "Vanishing Shadow" program in school before you watched it at night?	
	(a) every day	62%
	(b) almost every day	19%
	(c) about half the days	4%
	(d) a few days	8%
	(e) not at all	7%
5.	How many new words have you learned from watching the "Vanishing Shadow?"	
	(a) many	56%
	(b) some	24%
	(c) a few	14%
	(d) none	5%
6.	Where did you watch the "Vanishing Shadow?"	
	(a) at home	89%
	(b) at a friends' home	5%
	(c) somewhere else	1%
	(d) didn't watch it	3%

Table 10 (Continued)

7. Who watched with you?

(a) my family ----------47%
(b) family and friends ----------18%
(c) friends ----------11%
(d) no one ----------17%

8. Did you do the follow-up exercise each day in school?

(a) always ----------46%
(b) usually ----------25%
(c) sometimes ----------20%
(d) never ---------- 7%

9. How do your friends feel about the "Vanishing Shadow?"

(a) they like it a lot ----------38%
(b) they like it a little ---------33%
(c) they don't care about it -----14%
(d) they don't like it at all ----11%

10. Did you read ahead in the script to find out what would happen next?

(a) many times ----------21%
(b) sometimes ----------26%
(c) a few times ----------25%
(d) not at all ----------19%

Table 11

Test Scores of Male and Female Subjects

	Pretest		Posttest	
	Male	Female	Male	Female
Attitude	55.4	58.5	54.3	57.5
	N = 732	N = 734	N = 939	N = 904
Vocabulary	15.3	14.8	16.8	16.3
	N = 735	N = 737	N = 915	N = 880
Words in Context	8.4	9.0	9.9	10.3
	N = 612	n = 610	N = 883	N = 868
Comprehension	5.4	5.4	5.4	5.5
	N = 655	N = 654	N = 893	N = 871

Table 12

Means for Classes Taking Both Pretests and Posttests and Critical Ratios for the Mean Differences

	Test Type							
	Attitude		Vocabulary		Words in Context		Comprehension	
Rm. No.	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
7	61.6	63.5	18.0	22.3	11.3	14.4	6.4	7.3
10	58.4	54.3	16.7	16.3	7.8	9.7	5.7	5.4
12	58.7	56.5	14.1	16.2	7.9	10.2	5.5	6.3
13	53.9	53.0	6.3	6.6	1.1	2.7	2.7	2.5
17	51.5	48.8	16.2	23.6	9.4	14.4	6.1	6.9
31	54.5	51.3	12.6	16.3	7.4	9.6	5.9	5.2
34	59.0	59.1	13.2	13.5	7.5	10.4	4.8	5.4
40	59.4	65.8	11.5	21.7	8.7	15.4	5.9	6.2
44	46.7	49.8	9.7	8.3	2.6	3.7	1.7	3.0
48	59.1	55.4	9.0	10.5	5.8	5.8	4.2	4.4
50	59.3	58.9	21.5	24.5	12.3	13.8	6.3	7.0
54	62.9	58.9	18.0	15.1	9.7	7.7	6.9	4.7
59	57.6	54.5	14.8	14.6	8.6	9.9	5.8	5.4
64	52.7	49.7	14.7	17.4	7.8	9.4	5.6	5.6
66	57.2	56.0	15.3	15.0	9.5	9.0	5.9	5.5
69	52.5	55.6	15.6	19.4	8.6	11.9	5.2	6.2
82	54.6	55.5	19.5	21.1	12.1	13.4	6.9	6.4
88	56.2	53.9	13.8	12.9	10.6	7.9	5.4	5.3
89	55.6	55.1	9.2	10.8	10.8	6.9	5.5	4.9
90	55.4	55.3	13.0	15.7	7.9	7.9	5.4	4.6
96	54.7	54.9	16.7	17.8	7.4	11.7	6.6	5.5
104	52.1	53.9	13.0	17.2	7.5	10.0	5.3	5.5
108	55.5	58.7	18.0	19.7	10.6	14.3	6.2	6.1
$\bar{X}_x$	56.0	55.6	14.4	16.4	8.4	10.0	5.5	5.4
D_m		-.4		2.0		1.6		-.1
C.R.		1.43(N.S.)		6.67($p<.01$)		5.82($p<.01$)		.63(N.S.)

REFERENCES

ADAMS, A. H. & HARRISON, C. B. Using television to teach specific reading skills, Reading Teacher, 1975, 29, 45-51.

BALL, S. & BOGATZ, G. A. The First Year of Sesame Street: An Evaluation. Princeton, New Jersey: Educational Testing Service, 1970.

BALL, S. & BOGATZ, G. A. Reading with Television: An Evaluation of the Electric Company. Princeton, New Jersey: Educational Testing Service, 1973.

BALL, S.; BOGATZ, G. A.; KAZAROW, K. M.; & RUBIN, D. R. Reading with Television: A Follow-up Evaluation of the Electric Company. Princeton, New Jersey: Educational Testing Service, 1974.

BECKER, GEORGE. Television and the Classroom Reading Program. Newark, Delaware: International Reading Association, 1973.

BELL, KEN. Television and reading. Georgia Reading Journal, 1975, 1, 41-43.

Computer-tutor. American Education, 1976, 12, 4.

BOGATZ, G. A. & BALL, S. The Second Year of Sesame Street: A Continuing Education. Princeton, New Jersey: Educational Testing Service, 1971.

BROWN, M. W. A Study of Reading Ability in Preschool Children. Unpublished M.A. thesis. Leland Stanford University, 1924.

BRUNER, J. S. Imaginative uses of television, pages 54-58 in Inquiry: Implications for Televised Instruction. Washington, D. C.: Department of Audiovisual Instruction, National Education Association, 1966.

BUNGER, M. A Descriptive Study of "Operation Alphabet" in Florida and an Evaluation of Certain Procedures Employed. Unpublished Doctoral Dissertation, Florida State University, 1964.

CAFARELLA, R. L. Mount Vernon T.V. reading program. Paper read at the 20th Annual Convention of the International Reading Association. New York City, May 13-16, 1975.

CARNER, R. L. An Evaluation of Teaching Reading to Elementary Pupils Through Closed Circuit Television. Unpublished Doctoral Dissertation, Syracuse University, 1961.

CARNER, R. L. The effect of televised reading instruction on attitudes toward reading. Elementary English, 1962, 39, 234-236.

CARTER, S. M. Interpreting Interests and Reading Interests of Pupils in Grades One Through Three. Unpublished Ph.D. dissertation, University of Georgia, 1976.

CAZDEN, C. Child Language and Education. New York: Holt, 1972.

CHOVRIL, C. Reading Programmes on BBC School Television. Paper presented at the International Reading Association convention, New York City, May 13-16, 1975.

COLEMAN, E. B. & MORTON, C. E. A modest plan to raise the national intelligence. Educational Technology, 1976, 16, 7-17.

CRONBACH, L. J. Coefficient alpha and the internal structure of tests. Psychometrika, 1951, 16, 297-334.

DALUOHY, A. Watch and talk. Language Arts, 1976, 53, 132-134.

Determining the Effects of "Developing Readiness for Preschool Children Via Television": A Title III Project. St. John, Indiana: Lake Central School Corporation, n.d.

DOAN, K. TV on a Saturday morning when people are second best: Saturday morning's cartoon world. TV Guide, 1976, 15, 10-13.

DUNN, B. J. The effectiveness of teaching selected reading skills to children two through four years of age by television. Paper read at the American Educational Research Association Conference,

ELLER, M. L. Individualized learning using TV. Educational Broadcasting, 1975, 8, 27-30, 42.

ESTES, T. H. & JOHNSTONE, JULIA P. A Scale to Measure Attitudes Toward School. (mimeographed) Charlottesville, Virginia: the authors, 1974.

FEELEY, J. T. Television and reading in the seventies. Language Arts, 1975, 52, 797-801, 815.

FEELEY, J. T. Reading with T.V.: British and American approaches. Reading Teacher, 1976, 30, 271-275.

GARRY, R. Television's impact on the child, pages 7-13 in Children and T.V.: Television's Impact on the Child. Washington, D. C.: Association for Childhood Education International, 1967.

GATTEGNO, C. Toward a Visual Culture: Educating Through Television. New York: Avon Books, 1969.

GOLDSMITH, J. Television Motivational Reading Program. Paper read at the 20th Annual Convention of the International Reading Association. New York City, May 13-16, 1975.

GREENBERG, B. S. & DOMINICK, J. R. Television behavior among disadvantaged children. In B. S. Greenberg & B. Dervin (Eds.) Use of Mass Media by the Urban Poor. New York: Praeger, 1970, pp. 51-72.

HAMILTON, H. TV tie-ins as a bridge to books. Language Arts, 1976, 53, 129-130.

HARGIS, C. H.; GICKLING, E. E.; & MAHOUD, C. C. The effectiveness of of teaching sight words to students with learning disabilities. Journal of Learning Disabilities, 1975, 8, 44-46.

HERRIOTT, R. E. & LIEBERT, R. J. "The Electric Company" In-school Utilization Study, Vol. 1: School and Teacher Surveys. Tallahassee, Florida: Center for the Study of Education, Institute for Social Research, Florida State University, 1972.

HOMME, L. A behavior technology exists--here and now. Paper read at the Aerospace Education Foundation's "Education for the Seventies Seminar." Washington, D. C., 1967.

HUMPHREY, J. W. The Effect of a Summer Television Reading Program on the Reading Achievement of Children. Final report. U. S. Department of Health, Education, and Welfare. Project No. 2647, Contract No. OE-5-10-262, 1967.

KING, W. 'Kung Fu' and "Sanford' praised as aids in teaching of reading. New York Times, June 24, 1973.

KINNAMON, S. E. Commercial television and adult reading Journal of Reading, 1975, 18, 470-474.

LAMB, P. Reading and television in the United States. In J. E. Merritt (Ed.) New Horizons in Reading: Proceedings of the Fifth IRA World Congress on Reading, pp. 370-382. Newark, Delaware: International Reading Association, 1976.

LESSER, G. S. Children and Television. New York: Random House, 1974.

LIEBERT, R. J. "The Electric Company" In-School Utilization Study, Vol. 2: The 1972-73 School and Teacher Surveys and Trends Since Fall, 1971. Tallahassee, Florida: Center for the Study of Education, Institute for Social Research, Florida State University, 1973.

LUKE, R. A. Operation alphabet. Wilson Library Bulletin, 1965, 40, 54-56.

MARTIN, J. G. & MELTZER, R. H. Visual rhythms: report on a method for facilitating the teaching of reading. Journal of Reading Behavior, 1976, 8, 153-160.

MASON, G. E. Children learn words from commercial television. Elementary School Journal, 1965, 65, 318-320.

MC CLINTICK, O. F. "Beginning reading via television." Literacy Discussion, n.d., 3, 405-408.

MC DONALD, T. F. The effect of auditory, supraliminal, and written reinforcement of words presented by I.T.V. on the vocabulary development of seventh and eighth grade pupils. In G. B. Schick & M. M. May (Eds.) Reading: process and pedagogy. Nineteenth Yearbook of the National Reading Conference. 1971, 2, 128-133.

MC INTYRE, A. D. Our children learn from TV, pages 59-61 in Children and TV: Television's Impact on the Child. Washington, D. C.: Association for Childhood Education International, 1967.

MC LUHAN, M. What TV is really doing to your children. Family Circle, 1967, 70, 99.

MC MANUS, A. The Denver pre-reading project conducted by WENH-TV. The Reading Teacher, 1964, 18, 22-26.

MC NEMAR, Q. Psychological Statistics, Second Edition. New York: John Wiley and Sons, 1955.

MC WHORTER, H. E. Effective use of TV in the classroom, pages 34 and 35 in Teachers TV Handbook. Montgomery, Alabama: Alabama Department of Education, 1973.

MORRIS, J. M. Television and Reading. Paper read at the 19th Annual Convention of the International Reading Association. New Orleans, May, 1974.

MURPHY, J. & GROSS, R. Learning by Television. New York: Fund for the Advancement of Education, 1966.

National Assessment of Educational Progress. Report 02-R-20, Released Exercises: 1970-71 Assessment. Denver: Educational Commission of the States, 1973.

O'BRYAN, K. G. Eye movements as an index of television viewing strategies. Paper presented at the Annual Convention of the Society for Research in Child Development. Denver, Colorado, April, 1975.

OFIESH, G. D. The Failure of Educational Television. Los Angeles: Acolyte Publications, Inc., 1968.

Old Enough to Watch TV: Old Enough to Learn. New York: Gellert Publishing Co., 1969.

PERLISH, H. N. An investigation of the effectiveness of a TV reading program along with parental home assistance in helping three-year-old children learn to read. Unpublished doctoral dissertation. Philadelphia: University of Pennsylvania, 1968a.

PERLISH, H. N. Wordland Workshop. Philadelphia: Triangle Publications, Inc.: 1968b.

PERLISH, H. N. Early reading via television. Educational Television International, 1970, 4, 110-115.

Pop-ups teach reading. Educational and Industrial Television. March, 1973, 22.

POTTER, R. L. New Season: The Positive Use of Commercial Television with Children. Columbus, Ohio: Charles E. Merrill Publishing Company, 1976.

RIDDER, J. M. Pupil opinions and the relationship of television viewing to academic achievement. Journal of Educational Research, 1963, 57, 204-207.

Satellite beams educational TV to Alaskan villages, page one in Northwest Regional Laboratory Memberandum, November, 1974.

SCHRAMM, W.; LYLE, J. & PARKER, E. B. Television in the Lives of Our Children. Stanford, California: Stanford University Press, 1961.

SOLOMON, B. The television reading program. Language Arts, 1976, 53, 135.

SPRIGLE, H. A. Who wants to live on "Sesame Street?" Young Children, 1972, 28, 91-109.

Thrills of Learning. American Education, 1975, 11, 4.

"The Vanishing Shadow" Encourages Kids to Read in Jacksonville, Florida. Jacksonville, Florida: Post-Newsweek Stations, Inc., April 18, 1975.

WAGONER, G. The trouble IS in your set: The TV as homunculus. Phi Delta Kappan, 1975, 57, 179-184.

WATERS, C. R. 'Thank God something has finally reached him': two Philadelphia school teachers discover the power of television. TV Guide, 1974, 22, 6-9.

WITTY, P. Children's, parents', and teachers' reactions to television. Elementary English, 1950, 28, 349-355.

WITTY, P. Children and TV--a fifth report. Elementary English, 1954, 32, 349-347.

WITTY, P. A tenth yearly study and comments on a decade of televiewing. Elementary English, 1959, 37, 581-586.

WITTY, P. A. Some research on TV, pages 15-23 in Children and TV: Television's Impact on the Child. Washington, D. C.: Association for Childhood Education International, 1967.